GOSAMVARDHANA

June 1962
Jaistha-Ashadha 1884 Saka

Vol. X
No. 3

IN THIS ISSUE

- Gosamvardhana in Parliament
- Management of Dairy Herd

Editorial

"Climate" of the Country and Gosamvardhana

THE President of the Central Council of Gosamvardhana, Shri U. N. Dhebar, M. P., voiced the vital need of the hour from the floor of the Parliament when he demanded greater and concerted attention of the country towards animal husbandry and cattle development as the basis of India's agricultural development. He emphasised that there was a vital link between the 'Climate' that was created in the country and the realities of situation that prevailed. Shri Dhebar cautioned that we were creating a climate "for" industrialisation in the country (and our children were taught for that—resulting in an imbalance of emphasis).

The warning is most opportune.

Immediately after independence, we have been so enthusiastic about country-wide propagation for industrial development, raising of heavy industries, huge factories, gigantic dams and power projects that, at times, the very fundamental edifice of country's basic development that of agriculture, if not ignored, has certainly not got its due share of attention. The industrial development and projects in that field may be important and have their rightful place in our developmental programmes but, as recently declared by the Union Minister for Food and Agriculture Shri S. K. Patil, agriculture remains the mother of industry in India and would continue to be so for a number of decades. This fact has to be positively emphasised and a psychological atmosphere and general consciousness in the people created about the importance of this vital aspect of our national economy.

Further, this has also been realised and now accepted that, if agriculture is the base of country's developmental economy, animal husbandry is the base of India's agriculture—and cow is the base of animal husbandry. The animal husbandry has to be cow-oriented. Hence, cow keeping has not to be treated as secondary aspect of agriculture—rather it has to be given a place as an integral part of various facets and processes of agricultural economy. It is, therefore, logical and natural that mass consciousness has to be created about the importance of animal husbandry in general and the cow in particular so as to bridge the gap which has set in-between the psychological 'climate' and 'realities of the situation'.

Where do we start from? The most basic stage to develop such a consciousness, general awakening, an interest for cattle development and the vital role played by the cow in our journey of progress has to begin with the education of our children—at the primary stage, apart from other media of publicity and mass communication. Our children should be taught not only for industrialisation but they should be provided with a correct bias and balanced approach towards our national economy. It is in this light that the need of reorienting our educational curriculum from the primary stage to the highest stage has to be realised. The sooner it is done, the better will it be.

Gosamvardhana In Parliament

• • •

Shri U.N. Dhebar's Call To The Nation

"CRYING need of the hour is that as agriculture is the base of the country's economy, cow and bullock power have to be provided in sufficient quantity in order to strengthen that base," said Shri U.N. Dhebar, M.P., and President of the Central Council of Gosamvardhana intervening in the dabate on the demands for grants for the Ministry of Food and Agriculture, on the 23rd May, 1962. He drew the attention of the House (Lok Sabha) to the emphasis that was needed on the problem of the development of Animal Husbandry in general and the cow in particular.

Need for increased traction power, augmentation of milk and manure supply

Shri Dhebar said, "India needs 30 million to 40 million horse power a day for traction purposes in the agricultural field. That means, we need about seven crores of bullocks; and an annual replacement of about one crore of these. Our milk supply is the lowest in the world. We produce 25 million tons, at a rate of 10 ounces per head per day as against our present need of 50 million tons. Then, we need bullock power for transport purposes. We need manure, about 40 crore tons of organic manure in one year."

On a question from Shri Harish Chandra Mathur, M.P. from Jalore, Shri Dhebar informed him that by manure he meant ordinary manure—cow dung.

Continuing his call to the Nation, from the floor of the Parliament, to be awakened about the vital role of animal husbandry and cattle development, Shri Dhebar pointed out: "........The amount of attention that is being paid by the country and by the state governments to this branch of our invested capital in the form of livestock is practically nil. Whenever there is a shortage of coal, iron, steel or electricity, we hear the vocal elements in the House also coming forward with all their strength and taking the Ministers to task. But, we do not know the condition of the people, nearly 4 crores of them, who are engaged in this business of animal husbandry."

Need For A Realistic Approach

"This is not the fault of anybody. This is the fault of the climate in the country. We have all too soon felt the need of industrialisation so much that we have forgotten that we are an agrarian country principally, and we are going to remain as such, for a long time, whatever efforts the Government of India and the State Governments in the country may make. I think so because there is a situation in the country, which, if it is realistically examined, whether it is from the point of view of hunger or employment, calls for a realistic approach."

Animal Husbandry's Contribution to the National Economy

"You will be surprised to see, in the Second Five Year Plan, a paragraph on this issue. It says : "Despite the large population in 1950-51, the net value of livestock products amounted to only Rs. 664 crores or 16 per cent of the income from agriculture. That is, animal husbandry contributed 16 per cent of the national income from agriculture. I have not got the figures at the moment. But, I have reliable information that in 1935, at the time of the Report of the Royal Commission on Agriculture, the figure of income from this source was estimated at Rs. 1,000 crores. So, from 1935 to 1950, the income from this source appears to have gone down. Subsequently, steps have been taken and in the Second and Third Five Year Plan periods, the income has gone up from 664 crores to something like Rs. 890 crores. *But whether it is employment or whether it is satisfying the needs of the country in the field of agriculture, I must observe that enough attention is not being paid to this branch.*"

Paradoxes In our Plans

"There is a complaint in the third Plan that the development of animal husbandry during the first two Plans suffered from several limitations; some of them were of a continuing nature such as large proportion of uneconomic and surplus cattle, deficient nutrition and shortage of breeding bulls. These are the statements, one contradicting the other. On the one hand, the Plan says there is a large proportion of uneconomic cattle. On the other hand it says, 'deficient nutrition'. Nutrition has a connection with the economy of cattle and the tragedy we have in this country is, we are decrying this source of our country's wealth, namely, animal husbandry, although we are providing only 66 per cent of its nutritive needs. *We are short to the extent of* 33 *per cent of the nutrition for the cattle wealth of India.*"

"Then there is the second statement in the Plan : there is a large proportion of surplus cattle. I fail to understand this in the Plan. We need seven crores of bullocks; we have got only 6.5 crores of bullocks according to the 1956 census. We need five crores of cows if we want to supply one crore of bullock power every year. We have only 4.5 crores of cows. *I do not understand how we have come to the conclusion that we are surplus in cattle wealth in India.*"

Traction Power through Tractorisation in India—an Impossibility

"The report on the marketing of cattle of India in 1946 makes this observation : "India is not the most densely populated country in the world for she has a high ratio of cattle to human population unlike countries important for stock raising. It is forgotten that in an agricultural country we have the duty to provide traction power for agriculture. Is it conceived by anybody with any idea of our country's economy that we can run our agriculture through tractorisation ? If we want to go over to tractorisation we shall need nearly 40 lakhs of medium-sized tractors and a replacement, every year, of something like five lakhs of tractors. India has not the resources, nor the Indian farmer who is expected to do this has the resources to undertake agriculture through tractorisation. There are six crore families of agriculturists in India. Out of them, nearly 57 per cent have only holdings of less than five acres each. Can they ever purchase tractors ? Therefore, the only source of motive power available to this country is bullock power, and therefore, I cannot understand the statement that we are surplus in cattle wealth. *The real difficulty is that we are short of cattle foods, cattle feeds and cattle fodder.*"

Meagre Allocations on Animal Husbandry in the Plans

"If we see the figures of investments in the first three Plans on this head, we shall be surprised. In the first Plan, on animal husbandry,

the actual expenditure was of the order of Rs. 7 crores to Rs. 8 crores. During the whole of the first Five Year Plan, all that we spent on animal husbandry was Rs. 7 crores.... In the second Five Year Plan period, we spent about Rs. 21 crores on animal husbandry and Rs. 12 crores on dairying. In the third plan, we have a provision of Rs. 90 crores—about Rs. 56 crores for animal husbandry and Rs. 34 crores for dairying."

Strengthening the Mother of Agriculture—the Cow

"A little study that I have been able to make on this problem during the the course of the last year and a half has made an impression upon me and I would suggest that *if we really want to lift our agriculture from the ruts in which it is lying today—it is not merely a question of animal husbandry—if we want to intensify our agriculture, we will have to raise our traction power. That means the capacity of the bullocks. And we shall not be able to do that unless we raise or strengthen the capacity of the mother of agriculture, that is, the cow. If agriculture is the base of the country's economy, the cow is the mother of agriculture. You cannot think of agriculture unless you have a prosperous cow.* My suggestion, therefore, to the Government would be to review kindly the allocation under the head 'Animal Husbandry', from this point of view."

"I fear very much that once we have taken to the intensification of agriculture, there will come a point in the third year of the Third Five Year Plan or the fourth year of the Third Five Year Plan when we shall be short of bullock power. As I said, if you will examine the figures and the shortage of bullock power in Maharashtra even now you will be convinced that the fear I am expressing on the floor of this House is not unfounded. Maharashtra today is short of bullock power to the extent of 25 per cent. I am sorry to say that *we are building this country upon a superstructure which itself is weak. Unless the agrarian base is strong, this country will not be economically sound and strong.* Industry will produce goods but industry will not produce foodgrains. If you want our agriculture to progress, it is the bounden duty of this House to study this aspect of the problem as to how to strengthen the base of agriculture. The base of agriculture is organic manure on the one side and traction power on the other. Without these two, you cannot think of intensive agriculture."

Animal Husbandry—Not a side issue

"My second plea to the Government will be this. Not to treat this department of animal husbandry as a side-show of agriculture only. It has a role to play in building up the economy of the country, and it will not be able to play that role unless animal husbandry receives the concentrated attention, just as irrigation is receiving the concentrated attention of the country."

Imperative need to liberalise grants to States for Animal Husbandry

"My third plea to the Government will be this. Now, much is left on the score of animal husbandry to the state governments. The state governments have many other problems, one of the biggest problems facing the state governments is how to find money for social services. Some of the state governments are spending as much as 20 to 25 per cent of their budget on health. The Central Government will have to be liberal to the State Governments in relation to animal husbandry. Otherwise, what is happening today is, whenever there is a cut, the first department which suffers the cut is the department of animal husbandry."

Animal Husbandry should have a proper place in our educational system

"Finally, my plea to the Government would be on this score that the country does not realise the importance of animal husbandry,

because there is a vital link between the climate that we create in the country and the realities of the situation in the country. We are creating a climate of industrialisation in the country before the country is ready for agricultural intensification. The Scandinavian countries, which are industrial, are also agriculturally strong. They give importance to this branch of animal husbandry. The children are taught in schools about the importance and the role of cattle wealth in the country. In our schools today, the children are being taught for industrialisation. Undoubtedly that is very necessary. But there is no education being given to the children of the country about this aspect of the country's economy. *A place must be found for animal husbandry in our educational system also.*"

"It is a tragedy of the Indian situation—and I cannot help remarking it here. The tragedy of the Indian situation is that we are trying to be moderns, even ultra-moderns, when our economy is still in the realm of 18th and 19th century. We are so much after things and things produced from things that we forget the basic needs. A biological human being can be strong only when you put in something in the human being in the nature of healthy food in sufficient quantity. It is that which India lacks."

"My request to the Government of India is that the Government attend to this problem as an urgent problem. *There is a lag in the production of sufficient number of bullocks. Whether there is irrigation or not, if sufficient number of bullocks are not there, your agriculture will suffer.*"

MEMBERS DEMAND GREATER ATTENTION TO BE PAID TO CATTLE DEVELOPMENT PROGRAMMES

EARLIER, speaking on the subject, Shri H. P. Chatterjee felt: "With regard to cattle, outlay is very necessary....One fourth of the world's entire population of cows and buffaloes is in India. But we have the lowest milk yield in India, so to say....We are in a vicious circle. A cow is not economic....unless and until you take proper care of the cow, it will never be economic. It is a vicious circle. In a nutshell, I should say that good feeding and good breeding—these two things should be attended to if you want to regenerate our cows. We should also have rotational pastures." Shri Chatterjee suggested: "In the waste lands where we cannot grow food grains, we can go in for legumes. That would fertilise the soil and at the same time, feed our cows....". He made a reference to Gandhiji and emphasised that stress should be laid on cows. Equally emphatic was his plea for the development of dual-purpose cows.

On the general attitude of the people towards this problem—an attitude of worship on the one and that of her neglect on the other, Shri Chatterjee remarked: "In our country, we would not feed the cow, but we want the milk

all right. How can that be possible?....With all respect to those persons who are worshippers of the "mother Cow", I would say that they should pay more attention to the cow, they should atleast feed the cow and not kill the cow by not feeding her." "....there is one practice which must be stopped in this respect. We should not take our cows and leave them for grazing in the jungle or in the forests. That is a thing which is generally advocated, but that is very wrong. Over-grazing must be stopped, because it leads to so much of soil-erosion; over-grazing and trampling by the cows in the forest areas leads to soil erosion. So, over-grazing must be stopped, and so, we should not take the cows into the forests and let them loose there. That kind of practice must be stopped. You may sterilise them, you may put them in pinjrapoles or do whatever you like to reduce their number...."

Shri Brijraj Singh (Bareilly) impressed the need of providing pasture lands for the proper development of cattle wealth of the country.

Shri S. P. Singh (Bulandshahr) mentioned the importance of cow-dung. He said: "....This is a great source of our organic manure. But I am sorry to say that more than fifty per cent of this very valuable commodity is burnt as fuel by our farmers for their cooking purposes. I do not know how can it be avoided in near future, but I would request the Government to give this matter some thought. If some cheap fuel can be found and provided to the farmer for his cooking purposes, this very valuable commodity can be saved from destruction and it can be utilised in the fields for increasing food production."

Intervening in the debate, Shri A.M. Thomas, the Deputy Minister in the Ministry of Food, made a specific reference to animal husbandry. He noted: "....I am happy that this aspect of the Department of Agriculture has been highlighted in the debate....Shri U. N. Dhebar emphasised its importance and it is very difficult to add to what he had said on the subject. It has to be admitted that over-all improvement of livestock in India is a stupendous task as it suffers from one, two or three major limitations.

In the first place, a vast majority of cattle is non-descript. The production capacity of others—it can even be described that it belongs to well-defined breeds—is also very low. This makes the up-grading work very difficult. The improvement through selections is an extremely time-consuming process....".

"....The schemes for development of livestock are necessarily long-term schemes, the results of which can only be known after a lapse of several years. In case of selection also, the experiment may take place in centuries. In spite of these handicaps, both the Central and the State Governments intended to bring out an over-all improvement of cattle in India through better breeding, improved feeding and management, control of cattle diseases and the provision of marketing facilities for livestock and livestock products".

Shri Thomas was reminded of Pt. Thakur Das Bhargava, who had been a senior Member of Parliament who took deep interest in the welfare of the cattle wealth of the country. Shri Thomas said "I am reminded of the speeches that were made by Pt. Thakur Das Bhargava sitting in the very same seat which is now being occupied by Shri Dhebar. Pt. Thakur Das Bhargava even in his very last speech that he made in the previous house, emphasised the importance of animal husbandry. This importance is being realised, but the limitations have also to be borne in mind...."Referring to the emphasis laid in Shri Chatterjee's speech on breeding and feeding, Shri Thomas informed the house that various schemes had been undertaken in these spheres. The most important breeding scheme which had been continuing since the Ist Plan was the All India Key Village Scheme which envisaged the establishment

of Key Village Blocks in selected compact areas for intensive cattle development work....Progress had been made in the development of Hariana breed through controlled breeding.... The other schemes aimed at the development of Rathi, Tharparkar and Sanchor breeds of cattle in Rajasthan....In addition schemes had been undertaken for the mass castration of scrub bulls with a view to restricting multiplication of inferior types of cattle. Further, it was the accepted policy so far, of the ICAR to produce general utility or dual-purpose animals so that both milk and work quality could be improved. Elucidating his point, Shri Thomas said: "the policy inter-alia recommands that in areas where specific types exist selective breeding with a view to improving milk and work qualities should be practised. In case of well-defined draught breeds of which there are a number in the country, the objective should be to put in as much as milk in them as possible, without impairing their draught quality. In the case of well-defined milch breeds, the number of animals of which have considerably decreased after partition, the policy to improve them by selection and utilising them for grading up cattle in areas where non-descript cattle predominate. The Ministry has also constituted a working group of experts to review the present breeding policy and suggest changes, if any, to meet the changing requirements of the country."

With regard to feeding programmes, several steps had been adopted. The programme of work included production of seeds, cutting roots and other planting materials for improved grass and legumes etc for supply to the cultivators at subsidised rates, apart from other steps to popularise better cultivation practices.

Shri Thomas told the members that special efforts were being made to step up cattle development and increase milk production of cow's milk in rural areas under the Delhi Milk Scheme and in Rajkot, Ahmedabad, Anand and Gujerat areas. The Central Council of Gosamvardhana under the Chairmanship of Shri Sriman Narayan, Member, Planning Commission, had also set up a Special Committee, to suggest ways and means for preserving high-yielding strains of cattle and reducing their wastage in cities like Bombay and Calcutta.

Shri Vishram Prasad (Lalganj) said that there were about 6 to 6½ lakhs of villages in our country. He wanted the agriculture department to provide atleast one improved bull in every village so that the breeds of cattle could be improved and also the milk yield in the country.

Dr. Ram Subhag Singh, Minister of State in the Ministry of Food and Agriculture started his speech thus "I fully agree with Shri U. N. Dhebar that Indian economy is primarily an agrarian one. It has been so far a long time and it will continue, in future, to be so for a long time. But along with it, I would like to add that we should also have complete faith in scientific development of agriculture. Previously our whole economy was based on cattle, and at present also, it is based on cattle and will continue to be so far sometime in future. Without putting reliance on scientific methods of farming, we would not be able to compete with other countries of the world."

Dr. Ram Subhag Singh referred to the point raised by Shri U. N. Dhebar, earlier in the debate, wherein he had said that we were short of bullock power; we need about seven crores of bullocks, while we were having only about six crores and that for replacement also we needed only one crore every year. Our agriculturists would have to depend on bullock carts and bullocks and plough for a long time. Commenting on these observations of Shri U.N. Dhebar, Dr. Ram Subhag Singh said: "that is true and we think that for fifty more years, that condition will more or less continue. But I feel it is of the utmost importance that atleast the sons of the agriculturist should, along with knowing how to drive a bullock cart and a bullock plough, know how to handle a bulldozer and a tractor."

Shri Jagdev Singh Siddhanti (Jhajjar) also made a reference to the qualities of the cow and its place in our country's economy. He advocated a legal ban on cow-slaughter because of her utility and as the cow is the base for Indian farmers.

Shri S. K. Patil's reply, relating to animal husbandry, to the debate appears on the following pages.

Union Minister For Food & Agriculture, SHRI S.K. PATIL Declares

"......Agriculture Has The Greatest Place In National Economy Of This Country......No Meaning To Agriculture Without Animal Husbandry. . Animal Husbandry Here-after Is Going To Be Cow-Oriented......"

REPLYING to the debate on the demands for grants for the Ministry of Food and Agriculture, on the 24th May 1962, the Union Minister Shri S. K. Patil laid special emphasis on the role of animal husbandry particularly the cow in the national economy of the country.

In the opening phase of his speech, Shri Patil made a reference to "the very useful and very great speech" made by Shri U. N. Dhebar about the vital role of agriculture in the country's developmental plans. Agreeing with Shri Dhebar, the Union Minister for Food and Agriculture declared, "......in the national economy of this country, agriculture has the greatest place. In fact, our national economy heavily leans and would continue to heavily lean for another 50 years, if not more, on agriculture economy. Take away the agriculture of India and there is hardly anything that is left. In every sense, nearly 50 per cent of our national income comes from seventy per cent of our population, that is 30 crores out of 40 crores of people, live by agriculture; 60 million families look after or live on agriculture......"

Referring to the industrial development going on in the country and the place of agriculture vis-a-vis industry. Shri Patil remarked: "There is nothing really antagonistic between the two...... Agriculture by and large, is the mother of industries. Not only that we shall have to live upon it, we shall have to improve it and that ought to be our primary concern."

Shri Patil referred in detail to various problems connected with the food and agriculture situation in the country *viz.*, the question of maintaining the price line of agriculture commodities, mode of growing food and cash crops, food habits of the people in the country, progress of the Package programme; protection of wild life and an interest to be developed in children from the very beginning towards animals and love for trees.

He mentioned the various schemes being undertaken in the sphere of dairying: "The Delhi Milk Scheme and other schemes are going on......The Delhi Milk Scheme will be the biggest in the world when it is completed....There may be some initial teething troubles, these will disappear, and perhaps in three or four years 'time' the subject of.... giving more milk to our children will really be taken up with intensity both of purpose and of the efforts that we shall put forth in this regard......There will be more and more dairies and increased use of improved scientific methods of preserving and pasteurising milk and supplying it to the people."

Though the Union Food and Agriculture Minister Shri Patil dealt with Animal Husbandry in the last, but, his concern for this subject

was the most; and he put forward a very strong case for animal husbandry in general and the cow in particular. In unequivocal terms Shri Patil made it clear, "....there is no meaning to agriculture unless it is tied-up with animal husbandry and the cow." He made his observation further clear and added: "When I say 'cow', the term does not include the buffalo. It is not that I am the enemy of buffalo; not at all, I am the friend of all animals. But our animal husbandry hereafter in this country is going to be cow-oriented and not buffalo oriented." About the gradual replacement of buffalo's milk by cow's milk in dairies, Shri Patil informed the members of the Lok Sabha that the dairies in Bombay, Delhi or other places were now buffalo-based but efforts were being made to have them cow-based.

"As regards bullocks," he said, "we do not have them in sufficient numbers......If we require 70 millions of bullocks, we find that we have perhaps 10 or 20 millions less. But where are we going to get these bullocks from? Where is the strength for our bullocks? Why does our cow not give even half a pound of milk every day? Milk given by our cow is not enough even for the calf. That surely is not a position in which the proper types of bullocks can be produced: And our agriculture will be difficient if we do not have the (requisite) bullock power which is very necessary indeed for it (agriculture)......Therefore, it is necessary to improve the breed....all our agriculture and all our animal husbandry is woven round the cow, and therefore, we have got to see that the proper breed of cow is developed.."

Earlier, during his speech, Shri Patil made important references to some of the vital aspects of animal husbandry. On the cultivation of fodder and pastures he said: "It is well-known that we cannot improve animal husbandry without developing our pasture lands. Because we have no adequate forests and pasture lands, therefore, our cattle have been suffering. It is no use saying that we have 200 million cattle heads and then saying that they are in a miserable condition. Why should they be in a miserable condition? Because they do not get (suficient) to eat. Therefore, this problem has to be taken in hand immediately." Shri Patil subsequently mentioned some of the steps envisaged to augment fodder cultivation.

In connection with the development of agricultural education, he pointed out: "There must be agricultural colleges, veterinary colleges, something of animal husbandry because it is all a linked-up subject."

With regard to the need of fertilisers, Shri Patil felt that these contributed to about 80 per cent of increased production. But he was not in favour of ignoring composts. He felt: "Application of these composts, cow dung, nitrogenous fertilisers, phosphates, potash, etc. in various degrees and various combinations is necessary. For a long-time I should say even 50 years—the need for cow-dung and compost will remain...."

In his concluding remarks, he made a special reference to Shri U.N. Dhebar and said.... "It has been our good luck that a year back, I requested Shri U. N. Dhebar himself that he

(Cont. on Cover III)

Animal Breeding Programme In Madhya Pradesh

CATTLE have a prominent place in our agricultural economy since times immemorial because of the multifarious benefits derived from them in the shape of labour, manure, milk, milk products etc. The present day low level of productivity is due to improper breeding, feeding and management. During the Third Five Year Plan, special provisions have been made for livestock development work in our country.

The new state of Madhya Pradesh is composed of what formerly were Madhya Bharat, Vindhya Pradesh and Bhopal states together with 17 Hindi districts of former Madhya Pradesh; the Sironj sub-division of Kota district of Rajasthan, excluding the Sunel enclave of the Mandsaur district in former Madhya Bharat.

As the name implies, the state is in the centre of the country and is surrounded by seven states viz., Uttar Pradesh, Bihar, Orissa, Andhra, Maharashtra, Gujarat and Rajasthan.

This state possesses nearly 1/8th of the cattle population of the country. According to the 1961 census the total livestock population of the State is 3,75,66,812.

Cowstock	—	2,47,74,066
Buffalostock	—	55,75,761
Sheep	—	10,09,290
Goat	—	55,38,595
Horses & ponies	—	2,02,937
Other livestock	—	4,66,163

Out of the above livestock population 28,409 cow bulls over 3 years old are used for breeding only, 26,34,417 cow over 3 years of age are in milk and there are 87,92,540 working bullocks. Similarly there are 27,766 buffalo bulls over 3 years old, 10,57,935 buffalo cows over 3 years of age in milk and

Significant progress in Madhya Pradesh has been made during the First and Second Five Year Plans in respect of Cattle Development. As for the Third Plan, a provision of Rs. 520 lakhs for implementing Animal Husbandry Development Schemes has been made. This write-up deals with the IIIrd plan schemes.

10 84 216 he buffaloes are used for work. There are four well defined breeds of cattle in the state—viz; Malvi in Malva Plateau, Nimari in Southern parts of Dhar, Khargone, and Khandwa districts, Kenkatha in parts of Chattarpur tehsil and Panna district and Gaolao in parts of Chhindwara, Seoni, Betul and Balaghat districts.

Significant progress has been made during 8st and 2nd Five Year Plans and emphasis has been on extending the coverage of Veterinary services; improvement of existing cattle breeds with a view to preserve them and upgrade them with bulls of milch breeds in order to increase the production of milk; and making provision for Veterinary education and research.

During 3rd Five Year Plan the State Government have made provision of Rs. 520 lakhs for implementing the schemes of Animal husbandry development. The following are the main schemes being taken up:—

Veterinary Facilities and Disease Control.

During the 3rd Plan, 50 new hospitals will be opened by this department and 125 from block funds all over the State which will result in having one hospital for 60,000 heads of cattle.

Similarly 150 outlying dispensaries from this department and 150 from block funds will be opened additionally and thus there will be one outlying dispensary for every 31,000 heads of cattle by the end of 3rd Plan. Improvement of 10 existing Veterinary Hospitals and construction of buildings for 4 hospitals will be undertaken. Veterinary Hospitals and dispensaries in Mahakoshal region which are at present being run by Janapada Sabhas and Municipalities will be taken over. Adequate provision for supply of medicines and instruments for Village level workers chests has been made. Libraries will be established at 4 places. 14 additional Mobile Veterinary Units will be established and thus there will be one such unit for each district. Animal Ambulances will be provided in 5 towns and Disease Investigation Organisation will be set up at five places. Provision for Rabies control and for control of protozoan and other parasitic diseases has also been made. Eradication of Rinderpest scheme has so far covered 20 districts of the State. In Third Plan, remaining 23 districts will be completed.

Cattle Development.

The capacity of the existing A.I. Centres and Key Village Centres to serve the adult cattle population will be doubled from 3.30 lakhs to 6.50 lakhs. No new A.I. Centres will be opened but four existing centres will be converted into semen production centres from where semen will be distributed to A.I. Units whose number is proposed to be increased by 150 in the 3rd plan. Intensification of breeding is proposed to be undertaken in 15 selected A.I. Centres. 5,000 breeding bulls from this department as well as from blocks will be distributed for breeding purposes. The total adult cattle population requiring service works out to 37 lakhs and thus it will be possible to cater to the needs of 16% of the population.

Existing four cattle breeding farms and four bull rearing farms will be further expanded and improved with a view to make available 256 breeding bulls every year from these farms by the end of 3rd Plan. In addition to this, necessary provision for undertaking the schemes such as forage development on farms and in blocks, demonstration silopits, supply of chaff cutters on subsidy, improvement of pasture and grazing lands, mixed farming, development of gaushalas, improvement of existing gosadans, aid to private bodies for establishment of gosadans, establishment of charmalayas, control of menace of wild and stray cattle, milk yield competitions, cattle shows in each tehsil each year and Gosamvardhan acelebration every year has been made.

Dairying and Milk Supply

In order to arrange supply of good quality milk in large towns at reasonable price, three milk unions at Jabalpur, Indore and Gwalior will be established and one at Bhopal will be further expanded. On completion, Indore milk Union will handle 500 mds. of milk daily while Jabalpur, Bhopal and Gwalior will handle 250 mds. of milk. One milk colony is proposed to be established outside Bhopal to colonise 500 cattle of the city so that the milk will be produced hygienically and on scientific lines and the sanitation of the town will be improved. Loans to Primary Producers co-operative societies round about milk Unions will be given to purchase milch cattle and to grow fodder for better maintenance of cattle. Similarly loans to selected producers to increase milk production on modern scientific lines will also be given for capital expenditure such as construction of cattle sheds, purchase of dairy equipments etc. Existing dairies which are at present producing 7 to 8 mds. of milk per day will be further expanded so as to increase the milk production from 10 to 30 mds. per day according to the capacity of each dairy. One rural creamery is proposed to be established in one of the suitable milk pockets to collect milk from rural producers and to convert it into cream for manufacture of butter, ghee and milk powder. On completion of this creamery, it is expected that 4 thousand mds. of ghee will be handled. Provision for establishment of milk board, training of personnel, survey and statistics unit, rural extension service etc. has also been made.

Veterinary Education and Research

Provision for further improvement of Veterinary Colleges at Jabalpur and Mhow has been made in addition to the provision for research facilities at the College. The biological products Section at Veterinary College, Mhow will be further expanded to meet the major requirements of the State. Stockmen training Institutes at Shivpuri and Rewa will be further expanded and one new institute will be established to meet the requirements of Stockmen.

Extension

A Statistical Section, Marketing Section and Publicity Section have also been sanctioned for the Directorate. With the organisation of these specialist agencies, great stimulus will be given to Animal husbandry extension work in the State.

Subscribers Please !

Kindly ensure that the journal is regularly received, in time, by you. At the latest, the journal should reach you by the 20th of every month. It will be appreciated if an intimation regarding non-receipt of any issue is sent to this Council before the close of the month to which the particular missing issue relates. While corresponding with the Council, please quote, without fail, your subscription number.

PHENOVIS

Every sheep breeder knows that even when feeding on good monsoon grass, his sheep often get thin and sometime die. This is due to lakhs of very small worms that suck blood from the gut and so make the sheep weak.

Treatment with (phenovis) four times a year will control these worms. The first dose should be given just before the monsoon, the second and third doses should be given one month after the end of the monsoon. Your Veterinary Doctor will show you how to give the drug.

Ask your Veterinary Doctor

IMPERIAL CHEMICAL INDUSTRIES INDIA (Private) Ltd.,

CALCUTTA-BOMBAY-MADRAS-NEW DELHI

Sole Distributors in India for :

IMPERIAL CHEMICAL INDUSTRIES LIMITED

Pharmaceutical Division,
WILMSLOW, CHESHIRE, ENGLAND.

A HEART TO HEART TALK
BY THE CHIEF EDITOR

DEVELOPING THROUGH BETTER BREEDING COW

IN the preceding discussion, we have seen that the only way to rehabilitate the cow in our villages is to raise its economic standard and make her the vital source of the village prosperity. We will now discuss as to how that can be achieved through proper breeding.

The efficiency of any herd depends upon the average production of individual animals maintained. The culling out of a few low grade animals immediately raises the standard, but unfortunately for various reasons this simple fact is not well realised by our cow keepers. Let the village Panchayats decide the number of animals they can well maintain and try to dispose of the rest. This can be done by many ways.

In countries where beef eating is not prohibited, the best solution found out is to slaughter or sell the animals for slaughter. This cannot be thought of in our country where the cow is looked upon as a sacred animal. It has to be protected and our Constitution provides sanctuary to the cow and its progeny. As things stand today if the ban on cow slaughter is lifted, chances are that only the good cows will be slaughtered or the burden of the low grade ones will increase. Who would like to take the beef of the poor lean and diseased cow? Slaughter is out of question in this country. This method will not help the villagers.

Disposing Of The Surplus By Sale Or Gift.

The country can be divided into two groups: (i) Parts where we have cattle of some well known breeds. The cattle there are of better standard or do fit in the economy of the place. Cattle of inferior grade can be easily sold to other areas where the animals are of even worst standard. For example, the surplus cattle from Punjab and Rajasthan can easily be taken to parts like Assam, Bengal or Orissa where the local cattle are very poor. Even in each state this sort of transfer can be recommended. These pockets can be gradually developed to help the other pockets in raising their standards.

(ii) In pockets where the animals are of very low grade the economic standard can be raised by importing superior animals from other areas. In these areas efforts will be needed to cull out the very low ones. It should also be admitted that the pressure on land in these areas is also high. It has to be brought down. One way suggested is the establishment of Gosadans. This scheme has not been given a fair trial. It is even said

that this is a costly luxury to satisfy the sentiments of a few orthodox people. But we have a feeling that if the Panchayats collectively take care of these animals and maintain them on resources that are otherwise wasted, they can solve their problem. These animals are to be kept away from reproduction and full use of their dung and urine be made as manure and the dead animals be utilised to produce wealth and give employment to the needy poor. The science so far evolved out will greatly minimise the losses. The Government in the form of subsidies or local sympathisers in the form of donations can greatly help in this important cause. Some of the animals may be sent to the nearest Gosadan, Goshala or Pinjrapole.

Restriction of propagation from unwanted animals.

The root cause of all our main troubles is the production of unwanted animals. For this purpose a well planned method has to be devised. To begin with all the scrub bulls in the locality should be scrupulously castrated. Some states have enacted laws for this. In case of emergency advantage of this could be taken. If a well bred bull is not available, select the best one in the herd. This bull has to be kept away from the general herd. The cows are to be brought to him for services. All the bulls should be the property of the village Panchayats and it should be their choice as to whose cow would get the services. All the cows that are fit for progressive breeding should be registered and their development be ensured. Those that are not fit for reproduction may be kept away from the bull and gradually their number may be reduced.

The Provision Of high Class Bulls

It is now well recognised that the animal transmits its characteristics to the offspring, and therefore, for the production of better animals only high grade stock should be selected. The village breeder well knows that under our existing conditions in the village for natural services, one bull is enough for nearly 100 cows but whenever artificial insemination is taken up one good bull will serve as many as 2000 to 3000 cows. We cannot have all these cows of high standard so we make use of a high class bull to raise the efficiency of many cows. This very well brings out the importance of selecting the sire. The sire will build up the herd or finish it according to its qualities.

Selection Of The Bull

Having realised the value of a good bull in the development of the herd all efforts should be made to secure the most desirable quality animal from very low grade cows. It is not always necessary to go in for the best bull and wait for it if it is not readily available. Start with the best available and go on adding better ones as the herd improves. A definite breeding programme should be laid down. An ideal to be achieved should be set and efforts be made to achieve it in the shortest period. The selection of the bull will help this. The bull should be typical of the breed and without any serious defects. The begetting power of the bull should be studied by taking into account its physical make up, performance of its forefathers, sisters and brothers and if possible its own. The bull must be constantly kept under watch and as soon as any defect appears it must either be remedied or the bull changed. Inbreeding or close breeding should be avoided.

The Source Of Good Bulls

It is not always possible to get bull from the village herd neither it is advisable. The government has plans to supply bulls to the breeders. They are produced either at government farms, or progressive breeders' farm or

The vital role that better breeding plays in enhancing the efficiency of the herd hardly needs any emphasis. Desired results can be obtained only when, apart from other things, better breeding practices are applied. In this article have been spotlighted the various factors that need necessarily be taken into consideration while planning for better breeding.

in many of the Key Village units. Preferences should be given to those herds where systematic breeding plans are followed and records are maintained. In many parts of the country a network of Key Villages exists and advantages of this should be taken. Artificial insemination is becoming popular and it should be entrusted to the Panchayats. The local D.L.O. may be consulted or his advice should be followed.

The Feeding and Management of Bull

We have seen in previous discussion that feeding and management largely tells upon the performance of the animals. The bulls have to be adequately fed or well managed. The establishment of "*Nandi Shalas*" will greatly help. Bulls should never be allowed to roam in the fields. It is a wasteful process or will not allow controlled breeding. Nandi Shala should be an institution under the direct control of the village Panchayats. In the ultimate analysis, it is not only the reproduction, we want but we aim at stopping the births of animals that would not fit in our changing economy and also rapidly raise the standard-utility of the local ca'tle. The performance of the bull should be tested very often. Sometimes very good animals are lost.

Selection of the Female Stock

Though the bull is half the herd, the other half cannot be neglected for rapid progress. Quality in the cows is also important. Any cow that cannot economically produce high class animals should be rejected and should be replaced by better ones. Of course their number will depend upon the capacity of the Panchayat to maintain them well.

Care of the Offsprings

All energy and money spent in carrying out the breeding programme will not bear fruit if the new born calves are not reared well. The calves born should be graded in various groups according to their quality and use and managed accordingly. Calves from high grade animal-milkers as well as draught be reared as breeding stock. The others tested on the basis of utility and the poor ones be rejected to avoid losses. Negligence in this will either come in the way of the development of the animal or increase the burden of livestock on the society.

Records and Their Study

The breeder should know the individual animal in the herd. He must study the potentiality and performance of the animal. This can be done with the help of regular records and their study. Systematic records should be maintained or studied with the help of the officers concerned. Unfortunately this item is very badly neglected leading to great losses and blocking our progress. This important item should be entrusted to some members of the Panchayat. The help of any government Officer, L.D.O. to stockman should be forthcoming.

The Key Village Scheme

In various parts of the country the government has initiated a scheme which aims at the production of quality bulls and tries to bring about progressive development in the

area. It envisages taking up intensive work in a group of villages. All the scrub bulls are to be castrated. The useless animals are to be sent to the nearest Gosadan. An area is set out for breeding with artificial insemination and bulls are posted in other areas. Calf rearing is subsidised and proper nutrition is encouraged. Disease control and veterinary aid is attended to in places where the animals are of a higher grade. Milk recording is also taken up. In short all the necessary items for cattle development, required in a particular place are attended to. More useful items like marketing co-operative will gradually be added. There is a network of these Key Villages. It is recommended that the Panchayats keep themselves in touch with the nearest Key Village units and if one exists in their jurisdiction, co-operation be extended to their staff and efforts be made to make the scheme a success and help in remedying the defects, if any.

Artificial Insemination

There is a great dearth of good bulls in the country and whatever good ones are available should be put to maximum use. Scientists have evolved out a system by which the use of the bull is multiplied many times. Advantage of this should be taken. Religious prejudices or sentiments should not come in the way of progress. But today this method is not completely foolproof. It has some drawbacks. Efforts should be made to remedy them. It can only be done by cooperation with a progressive attitude of the authorities and by correcting the workers, if need be.

—**Y. M. PARNERKAR**

Please Rush With Your Orders *Only Limited Copies Available*

BI-LINGUAL PUBLICATION "CATTLE IN THE FARM ECONOMY"

(*Special Gosamvardhana issue 1961—Price Re. 1.50 nP.*)

Hindi Edition Of The Special Number "Rehabilitation Of The Cow"

(Price per copy 60 nP.)

Are available For Sale

Place Your Orders With

The Central Council Of GOSAMVARDHANA

Pataudi House, New Delhi.

"IT IS THE LAW OF NATURE THAT SPECIES SHOULD REPRODUCE THEIR OWN KIND AND BRING THEM UP. THUS THE MILK OF THE COW IS MEANT FOR THE CALF, BUT MAN ......IS TAKING THE MAXIMUM BENEFIT OF ALL THESE ANIMALS......"

COW THE FOSTER MOTHER OF HUMAN RACE

CATTLE were amongst the first animals to be domesticated by man since a long time. From the ancient history of India it is quite evident that cattle industry had its glorious days in the past.

Lord Krishna loved cow, because of her close associationship with human life and indispensable role played by her, in national health and economy. Indians worship cow, as deity not because of sentiments but because of her intrinsic value in our agricultural economy. It is the law of Nature that species should reproduce, their own kind and bring them up. In the natural state of affairs the milk of a cow is meant for her calf, but man being an intelligent and highly evolved animal, is taking the maximum benefit of all these animals existing on the face of earth. Various advanced scientific methods of feeding, breeding and management are being applied to get the maximum benefit. Cow is one of the prey's to this.

Economic Importance of Cow:

India has about ¼th of the World's cattle population. The main occupation being agriculture, the majority of Indians stay in villages. There are nearly seven lakhs of villages, in India. Cattle are indispensable to Indians, as they are the means for their livelihood. It will be not incorrect, if it is said that Indians cannot sustain, without cattle. Economy of our nation revolves on agriculture, which is pivoted on cattle wealth.

The presest low productivity of cow which we are finding it to-day, is not probably due to her inability to produce, but because of our negligence, improper breeding, mal-nutrition and mis-management. The neglect of cow is a very serious problem. We have the problem of shortage of food, because of immense increase in human population. It is quite essential for us to tap all available resources, to produce more and more food, of animal origin.

It is particularly stated by Vinoba Bhave, that "cow is an integral part of the Society". Wealth of a cultivator is usually judged by his standing cattle heads.

The sons of cow, the bullocks, till our land, irrigate crops by drawing water from well and act as an important source of animal power

By : Shri R.S. KULKARNI
Directorate of Animal Husbandry, Maharashtra

for transport in the village, where there are no roads even to-day.

The dung produced is the best organic manure for retaining soil fertility. The use of machines and chemical fertilizers, are beyond the reach of the economic status of our farmers. Cultivation by mechanical means is of less use, because of small holdings of land with majority of cultivators. Due to illiteracy the machines cannot be handled by our cultivators and bullocks can be easily managed as these are being used for agricultural operations since time immemorial.

Milk as a whole-some Food.

The milk is one of the main products that we receive from the cow. Milk is recognised, as the best human food, since thousands of years. Cow's milk is very easily digestible and has got a high nutritive value, as cow's butter fat contains a far greater amount of carotene context (Vitamin "A" substitute). Milk is considered as a complete food, as the substances required for maintenance of human life are embodied in it, i.e. (1) water (2) Carbohydrates, (3) fat, (4) Minerals, and (5) Vitamins.

Comparative study of percentage composition of Milk from various mammals reveals that the percentages of ingredients, of cow's milk are quite similar, or approximating to the composition of human milk, which justifies the caption of this article.

	Cow	*Human*
Water.	86.55	88.50
Fat.	4.97	3.30
Protein.	3.18	1.30
Sugar.	4.59	6.80
Ash.	0.74	0.20

Present Position of Milk Yield :

From the statistics, the per capita consumption of milk in our country, is far from satisfactory. The minimum requirements of milk in a balanced diet for an individual is considered to be at about 10 ounces per day. Even to-day, the average per capita consumption is about 5 ounces.

The average production of Milk per lactation of our cows is about 400 lbs, as compared to 4000 lbs. or more, from the cows in advanced Western countries.

It is said that our forefathers, were more healtheir than us, as they were getting wholesome and nutrient food. Enormous increase in the human population, with limited resources has brought us to poverty. Economic status has gone so low that we cannot afford to purchase milk which is very costly. Hence major population of the country is addicted to tea and have become slaves of the same. A stage has now reached, where, people cannot do, without tea, and have lost the taste of milk. It will not be surprising if it is said that children call milk, only, for the toned or powder milk, as they had no occasion to taste whole milk in their life-time.

Highest reverence is always paid, to mother, who is solely responsible for care and development of her offspring. It is said that "none is dearer than mother". Cows are considered to be foster mothers for human beings, as they supply whole some and nutrient food, in the form of Milk, to young and old alike. By application of improved methods of feeding, breeding and management, it is possible to produce several times more milk than the present yield.

What is the Solution for this ?

There are many ways and means to solve this problem. It is the cattle owners, merchants, and the public at large who should take lead to solve this problem. Government have sponsored several schemes, for improvement of cattle wealth. The following few ways, if taken advantages of, by all concerned, will lead to further improvement in the existing condition of cows.

(i) We have several breeds for milch purposes, and several breeds, for draught

purposes. To have economy, in feeding, management, we should have dual purpose breeds. They will provide us sufficient milk as well as efficient bullocks for cultivation. For improving the local stock, advantage of cross-breeding programme should be resorted to.

(ii) To have full employment to the farmer and for economic cultivation of land, "mixed farming" is essential. Animals can be maintained on the farms, which sustain on by-product of agriculture. The most important contribution is farm yard manure, which will enrich soil fertility which the grain crops exhaust.

(iii) Non-availability of good bulls, is a problem, but this can be solved very easily by resorting to Artificial Insemination. Government have established a good number of such centres for the benefit of cultivators.

(iv) As more and more acres of land, are being brought under cultivation for producing more and more food. grasping of cattle has become little difficult in some parts, many types of grasses can be grown, according to the geographical and rainfall conditions. In some parts grass is available in abundance which can be easily converted in "silage" and can be utilized in summer.

(v) To raise the economic status of farmers, Co-operative Societies are essential for financial assistance, for supply of concentrates and fodder during famine and to arrange marketing facilities. Milk was thought to be a perishable article of food, but by improved methods of pasteurisation, life of milk can be lengthened from 2 to 4 weeks.

(vi) Even to-day we have certain outstanding and reputed breeds of cows with a record of 8 to 9 thousand lbs. of milk with a very short dry period. This was possible to find out as records of performances of breeding and feeding were maintained. Hence herd registration is very essential, to select proper animals for breeding programme. This should be introduced in all herds.

(vii) Cows in India have a wonderful capacity of acclimatization to various climatic conditions. The advantage of this can be taken in selecting certain breeds of dual purpose.

(viii) Weeding of inferior stock is an important factor, in improving livestock on economic basis. This will have to be done with the help of Gosadans, Goshalas, and Pinjrapoles. People should take interest by contributing liberally to improve and increase pinjrapoles, Gosadans.

(ix) At present cow's milk has less value and a limited market. People should realise the value of cow's Milk, and should consume more and more cow's milk, which enables the industry to prosper.

(x) Remember, cow is a wonderful machine of nature converting roughages and crude fibre into valuable human food. Cow is one of the clean and economic animals. She expects human treatment and proper management, from us, to build our nation into a healthy and strong one.

- The Chief Editor reserves the right of translating and publishing any Hindi article into English.
- The view and opinions expressed in the contributed articles do not necessarily reflect the views or opinions of the Chief Editor, or the policy of the Journal.

mysteries of the rumen .....

RUMEN of the cow, known as the darkest place on earth, has long been filled with mysteries. In the present times, however, by the possible use of the rumen firtula technique, its mysteries are being gradually unfolded. The employment of such techniques has led the modern scientist to demonstrate that in the rumen, 70 to 80 per cent of the total digestion of cellulose occurs, non-protein nitrogen is converted into protein, amino-acids are synthesized, cobalt is concentrated into micro-organism and that vitamins of the B complex group as also vitamin K are synthesized.

The Fermentation Vat :—

Located at the anterior part of the digestive tract the fermentation vat (omasum, reticulum and rumen) as it is called, is quite spacious and enables cow to consume, store and utilize large amounts of coarse feed materials. This is of great importance particularly when only a fraction of such food materials is consumed by non-ruminants and is of no direct use to human population. It is also well suited to the maintenance of large microbial population which aid the cow in digesting plant constituents and synthesizing many nutritious compounds which are very essential for the normal functioning of the host animal. The location of the fermentation vat itself is of great significance. It not only results in the addition of large amounts of saliva but also puts the microbes in a very advantageous position as they get access to the readily available nutrients consumed by the host. Further, the continuous flow of saliva helps in two ways (i) it transports certain nutrients from the body of the animal to the fermentation chamber and (ii) it aids in maintaining a high water level in the rumen to promote fermentation.

Rumen Microbes Digest Fibre

Carbohydrates are the most important source of energy for ruminants. More than 50 per cent of the dry matter of roughages consists of celluloses and hemicelluloses. These are digested by enzymes produced by rumen bacteria. It has been found that 70 per cent of the cellulose digestion occurs in the rumen, and short chain fatty acids (e.g. acetic acid, propionic acid and butyric acid) are produced as a result of this digestion. These acids are absorbed through the fermentation vat wall into the portal circulation and transported to the liver where they become involved in metabolic processes.

Feeding excessive amounts of starch or *gur* (molasses) depress the microbial digestion of crude fibre. However, the addition of small amounts of *gur* to poor roughage rations seems to aid the rumen microbes in fibre digestion.

The most important factor that inhibits microbial digestion of celluloses and hemicelluloses is the increased deposition of lignin as the plant tissue matures. Thus the digestibility coefficient of fibre in young grass may be 70 as compared to 50 or even lower when the same grass is in its seed stage. Therefore, in order to get more utilization from roughage crops, it is considered necessary to harvest them at an earlier stage of maturity.

Rumen Microbes Make High Quality Proteins:

It is well known that whereas the adequate provision of

.. in relation to feeds and fodders

essential amino acids is always looked into while formulating the rations for poultry and swine to meet their requirements, cattle in common, with other ruminants thrive well even when they are fed on low quality protein rations. It is due to the fact that rumen microbes have the ability to convert the non-protein nitrogen part of the feed into microbial protein which contains all the essential amino acids. This extraordinary quality of the rumen microorganisms has further been exploited in the use of feeding compounds like urea to ruminants. However, urea should be fed along with starchy feeds such as oats and corn. In that event the fatty acids produced from starch will tie up ammonia temporarily to enable the microbes to convert the ammonia to protein before it is absorbed. In the absence of such starchy feeds, urea feeding has been found toxic. Usually it is advisable to limit the supplementation to not more than 3% of the grain mixture.

It, therefore, appears that compounds like urea can be fed to such animals to replace a part of the concentrate ration to meet their digestible crude protein requirements.

Rumen microbes are also able to utilize inorganic sulphur in the synthesis of sulphur containing amino acids such as methionine and cystine.

Butter Fat Synthesis also Indirectly Related to Rumen Microbes :

That the rumen microbes are related to the butter fat and milk production has also been shown by indirect evidence. The milk fat of ruminants contains appreciably high amounts of short chained fatty acids as compared to that of non-ruminants. This may be explained due to the production of large amounts of these in the rumen as a result of the microbial digestion of cellulose—a chief constituent of their ration. It has also been observed that cows, fed on a low roughage and high concentrate ration registered a marked decrease in the butterfat percentage. This, however, returned to normal level after oral administration of the acetates.

By : Shri B.N. Gupta
Indian Veterinary Research Institute Izatnagar

These, therefore, explain that the depression of butter fat percentage by a low roughage ration is associated with the decreased production of acetic acid which is so very essential for the synthesis of butterfat in cow's udder.

Vitamin Synthesis in the Rumen

For swine and poultry the inclusion of the vitamins in their feeds is very essential. The cow, however, holds a unique position in this respect. She carries with her at all times her vitamin factory where most of the vitamins (like thiamine, riboflavin, niacin, pantothernic acid, folic acid' biotin, pyridoxine, vitamin B12 and vitamin K) are synthesized in sufficient amounts to meet her needs for maintenance as well as for milk production. Thus irrespective of the type of rations fed, if milk is produced, it has always been found to be rich in these vitamins. The availability of so many vitamins in abundance in a single natural product like milk is one important reason why the cow's milk is regarded as a complete food and held in such high esteem. However, if the ration is deficient in cobalt, which forms an integral part of vitamin B12, there may not be sufficient synthesis of this vitamin.

Minerals Keep the Microbes Active :—

Minerals also play an important role to keep the microbes in action. As indicated above cobalt is one important mineral element in cattle nutrition. Its deficiency may, not only lead to the lowered production of vitamin B12 but also result in the decreased microbial population which make possible the use of cheap nutrients from roughages.

Phosphorus and iron also have been found effective in stimulating urea utilisation and cellulose digestion by rumen micro-organisms.

The ultimate aim in gaining such knowledge is to use cow to the best by providing her the full opportunity to convert the cheap nutrients in roughages into milk with a minimum grain supplement.

DR. R. N. GOVINDASWAMI

in this article gives useful tips on

Management Of Dairy Herd

MANAGING a herd of dairy cows requires careful attention to keeping records, handling cows, and many other phases of dairy husbandry. Profitable dairy farming requires good management of the entire farm operation. Adequate production records, for example, are necessary for economical feeding, for culling unprofitable cows from the herd, for providing bulls, and for use in selling cattle for breeding or production purposes.

PLANNING A RECORD SYSTEM

The dairy herd cannot be managed properly unless the records of milk production, breeding and other dairy herd operations are kept properly. Adequate records remove much of the uncertainty in the operation of a dairy farm. Careful record keeping causes increased profit, better feeding practices, increased production, improvement in quality of cattle kept, and the more efficient use of labour.

Records of production in relation to feed costs make it much easier to decide which animals should be culled. Similarly other phases of management can be simplified by keeping good records rather than by depending on opinions or by guessing in making decisions. In planning a good management programme, develop records of the animals in the herd, milk and fat production, feed consumption, breeding, health and finances.

Records are necessary for managing herds successfully. Those records must be kept accurately; they must be complete and up to date. You can carry a small note book with you to record data which can be transferred later to your permanent record books. By taking a few minutes to write down information at the time an event occurs, you will be preventing errors in your records. Record books can also be kept in a place where it will be convenient for you to work with them.

Keeping Records Of Individual Animals

Complete records of all animals in the herd must be kept. The name of each animal, ear tag number if available, date of birth, sire, dam, sex, pedigree, offspring, and reason for disposal and how disposed of when the animal leaves the herd must be included in the records. Records of date of birth and body weights of heifers must also be kept so that they may be bred when they reach the necessary age and size. Develop a pedigree for each animal to be kept in the herd or to be sold for breeding purposes. Keep a record of these pedigrees and include all available information. Such records help greatly in your breeding and culling programmes.

Keeping Health Records

Complete records of the health of each animal in the herd must be maintained. Start these as soon as the calf is born or enters the herd. Record the dates of brucellosis vaccinations, brucellosis tests, cases of mastitis and other illnesses, retained placenta, and so forth. Such records are necessary for successful

- Planning A Record System
- Careful Handling Of Cows
- Proper Breeding Of Cows
- Determining Costs Of Producing Milk
- Handling Manure From The Herd

dairying. To meet requirements, animals be retested at certain ages following vaccination. The careful checking of records may reveal that certain cow families are more susceptible to mastitis than others. This information can be of value in culling cows from the herd. Records of cases of mastitis are also a good indication of whether or not you are handling your herd properly. If mastitis occur frequently, check your management to determine why. A good record system must be kept for the control of disease problem in the herd.

Keeping Breeding Records

Keep complete breeding records because almost all phases of management depend in part upon them. Start keeping a breeding record of every heifer when she reaches puberty. A record of heat periods will be of value when you breed the heifer for the first time. Decide, on the basis of body weight, when you want her to calve and thus determine the time to breed her. Watch for signs of heat at the expected time on the basis of record of the previous heat period. Many heifers and cows are difficult to find in heat and can be found only by close observation. Breeding records are essential for keeping a list of the sires used, determining the expected calving date, checking of pregnancy, and similar important phases of management.

Keeping Milk Records

Record the milk production of a cow for every milking in order to evaluate her producing ability and to determine the amount of the feed she should receive. Determining the productive ability is necessary in culling cows, in feeding them efficiently for high production, in proving bulls, and in many other aspects of good dairy herd management. Keep yearly records of milk fat production. Such records are of considerable value in the sale of excess animals from the herd.

Keeping Feed Records

Keeping feed records is necessary for successful dairying. Feed dairy cows on the basis of their needs for maintenance for milk production, and reproduction. The use of the record cards helps to provide a permanent record. Such a permanent record is of value in determining the costs of production and the profit of individual cows. Use the feed and milk-production records in finding unprofitabte producers in your herd and then cull them out.

11. HANDLING COWS

Cows must be handled carefully and their confidence gained at all times. It is necessary that cows learn to like all individuals working with them. If cows are handled roughly during milking, they will not let down their milk completely, and decreased production results. Rough handling makes it more difficult to get cows to go into their stalls, and milk them, and to handle them in general.

Maintaining Regularity

Regularity in feeding, milking, and general handling of cows must always. be maintained Cows are like human beings in that they are

creatures of habit. Milking periods must be at the same time each day; otherwise the cows will become excitable and decrease in milk production. On most farms it is practical to milk cows twice a day at 12-hr. intervals. Milking at unequal intervals, such as 11 or 13 hr. causes decreased milk production and fat percentage. Feeding cows at the same time of day and in the same order is necessary for maximum production. Try to keep cows in the same stalls. Moving cows from one stall to another may be quite disturbing and cause the cows to decrease in milk production. The same individual should care for the cows as much as possible. The changing of milkers may cause large decreases in milk production.

Preventing Excitement

Handling cows quietly but firmly at all times. Having strangers in the barn or around the cows frequently causes a decrease in milk production. Talking loudly around the cows excite them. The use of dogs in handling cows may excite the cows considerably, causing injury and serious decrease in milk production. Prevent cows from becoming excited for excitement causes decreased production. A personal experience of the writer may be quoted here for example. When his cow was being milked a bamboo from a height fell down with a big noise and the cows got excited. She stopped her milking suddenly and completely. The reason for it was known later on. When the milk is let down the muscle of the alveoli contract and squeeze out the milk formed in the alveoli under the influence of a secretion from the pituitary on stimulation. On excitement the adrenal gland is stimulated and secrete adrenalin which causes the udder muscles to relax. Hence was the stoppage of milk flow of his cow. For the same reason, it is a common knowledge, that people go pale in the face when struck with fear.

BREEDING DAIRY COWS

Careful attention must be given to the breeding programme in any dairy herd if cows are to calve at the desired time and production is to be maintained at a high level. Cows should be bred to produce a calf every 12 months if the maximum production is to be maintained. A careful selection of sires and a practical breeding programme are necessary for profitable dairying.

Finding Cows In Heat

Check all cows and heifer in the herd daily to find out whether or not any of them are in heat. Look in gutters for any mucus or bloody discharges, or that are mooing or nosing neighbouring cows may be in heat. Many cows show very little evidence of being in heat and many are in heat for only a few hours. Turn cows out in yards daily to check for those in heat. Most cows when in heat will permit other cows to mount them. If several cows try to mount a particular cow but she does not stand, she may be early or late in heat. Carefully keep records of previous heat periods so that when you wish to breed a particular cow you can determine within one or two days the time that she will be in heat again. Most cows will come in heat every twenty one days unless bred. Three weeks after each breeding watch cows carefully. If they do not become pregnant, and about 40 per cent of them do not become pregnant on the first breeding, watch them carefully for heat and breed them again. To delay breeding by not observing cows in heat and not getting cows in calf causes serious losses in milk production latter on. Should cows fail to come in heat, have them examined by your veterinarian.

Examining For Pregnancy

All cows must be examined by a veterinarian for pregnancy at 10 to 12 weeks following breeding. Cows which are not pregnant some times do not come in heat because of retained corpus luteum (yellow body). Pregnancy examinations and the removal of retained corpus luteum could be done only by a veterinarian. Failure to get cows in calf

due to retained corpus luteum causes delays in calving and decreased milk production.

Preventing Spread Of Diseases

Preventing the spread of diseases, such as Bang's disease trichomoniasis, and vibrio foetus, through dairy herds is a major problem. Many of these diseases are spread from cow to cow by means of the bull in natural services. The bulls used in artificial insemination are selected carefully in order that they will be as disease-free as possible. You can breed cows artificially with the complete confidence that every known precaution is being taken to prevent the spread of diseases.

IV) DETERMINING COSTS OF PRODUCING MILK

You must know the costs of producing milk on your farm so that you can determine where you can make more profit. Your cows should make good profit above feed cost, which should be your largest item of expense, but there are many other costs to be determined in the production of milk. All costs of producing milk have risen sharply in recent years The dairymen have to consider these expenses carefully, as a rule in order to operate their dairy herds profitably.

Determining Feed Costs

Keep careful records of feeds fed to the dairy herd. Consider the costs of grain, hay, silage, pasture salt, and other supplements used. You must feed according to the productive ability of your cows if the dairy enterprise is to be profitable. For more profitable production, cull out the poorer producers in the herd as rapidly as possible and replace them with higher-producing cows. Consider not only the feed fed to milking cows but also the feed fed to calves and heifers being raised as replacements for the herd.

Determining Breeding Costs

Consider carefully what it costs to get your cows bred every year. After all costs are considered, it may cost at least Rs. 50/— a year to keep a bull. If you want to follow certain lines or families in your breeding programme, you may have to maintain your own herd sire. If you desire the services of good proved bulls but do not desire to hold to any specific line of breeding; you should use artificial insemination. Many artificial-insemination organizations now provide carefully timed service of their best bulls.

Determine Other Costs Of Producing Milk

There are many other costs of producing milk, such as bedding; testing, veterinarian services, water, electricity, and taxes, which range from several rupees to Rs. 20/—per cow per year. Keep these costs to a minimum. Provide adequate bedding to keep cow's udders off cold, and wet floors but do not waste it. Keep veterinarian costs down by calling the veterinarian early. When such diseases as mastitis and brucillosis become serious, large veterinarian fees and losses in milk production may occur which might have been prevented had the veterinarian been summoned at once. Check all other costs in order to keep the cost of producing milk in your herd to a minimum.

V) HANDLING MANURE FROM THE DAIRY HERD

Save all the manure produced by your dairy herd because it is of considerable value for the fertilization of the farm. Carefully handle the liquid as well as the drier portions of the manure. The liquid portion of the manure contains nearly 50 per cent of the fertilizing value. To keep losses to a minimum, spread manure daily. If manure is left in piles, it loses as much as 50 per cent of its fertilizing value. If manure must be stored, the storage shed must be provided to reduce losses.

Keep nitrogen losses in manure to a minimum by using 1 to 2 pounds of superphosphate per cow is gutters and allyways daily. The additional phosphate is of value in returning to the soil the phosphorus used by the cows for milk production and for other purposes. Handle manure carefully on pastures as cows may not graze on pastures which have been manured recently. When cows are taken out of a pasture under a system of rotational grazing, drag the pasture to breaker up piles of manure. When pastures are grazed on continuously, they should be dragged and clipped at least twice a year. Leaving these piles of manure will kill the grass under them and cause the growth of unpalatable grass about them. Handle manure carefully to maintain maximum farm fertility and to keep costs of purchasing fertilizers to a minimum.

Ninth All-India Livestock Census 1961

(Contd. from Previous issue) (Courtesy: Directorate of Economics & Statistics)

HIMACHAL PRADESH

S. No.	Item	1961 Census Numbers	1956 Census Numbers	Percentage of increase (+) or decrease (—) of Col. 3 over Col. 4	
(1)	(2)	(3)	(4)	(5)	
1.	**CATTLE**				
	(a) Males over 3 years				
	(i) *Used for breeding only*	2,747	1,490	(+)	84.4
	(ii) *Used for breeding and work both*	17,847	—		—
	(iii) *Used for work only*	382,439	370,109	(+)	3.3
	(iv) *Others*	10,116	9,644	(+)	4.9
	Total	413,149	381,243	(+)	8.4
	(b) Females over 3 years				
	(i) *Breeding*				
	(a) *In Milk*	154,855	168,724	(—)	8.2
	(b) *Dry and not calved even once*	252,363	231,254	(+)	9.1
	(ii) *Working*	960	53	(+)	1711.3
	(iii) *Others*	4,500	1,701	(+)	164.6
	Total	412,678	401,732	(+)	2.7
	(c) Young stock	386,951	387,786	(—)	0.2
	Total cattle	1,212,778	1,170,761	(+)	3.6
2.	**BUFFALOES**				
	(a) Males over 3 years				
	(i) *Used for breeding only*	2,679	3,710	(—)	27.8
	(ii) *Used for breeding and work both*	389	—		—
	(iii) *Used for work only*	515	795	(—)	35.2
	(iv) *Others*	110	142	(—)	22.5
	Total	3,693	4,647	(—)	20.5
	(b) Females over 3 years				
	(i) *Breeding*				
	(a) *In Milk*	61,908	64,355	(—)	3.8
	(b) *Dry and not calved even once*	86,788	77,463	(+)	12.0
	(ii) *Working*	199	22	(+)	804.5
	(iii) *Others*	1,199	672	(+)	78.4
	Total	150,094	142,512	(+)	5.3
	(c) Young stock	57,778	58,805	(—)	1.7
	Total buffaloes	**211,565**	**205,964**	**(+)**	**2.9**

MADHYA PRADESH

S.No.	Item	1961 Census	1956 Census	Increase or decreas over 1956 census figures
(1)	(2)	(3)	(4)	(5)
1.	**CATTLE**			
	(a) Males over 3 years			
	(i) *Used for breeding only*	28,409	51,591	(—) 44.9
	(ii) *Used for breeding and work both*	1,14,546	78,73,162	(+) 13.3
	(iii) *Used for work only*	87,92,540		
	(iv) *Others*	1,13,214	2,52,715	(—) 55.2
	Total	90,48,709	81,77,468	(+) 10.7
	(b) Females over 3 years			
	(i) *Breeding*			
	(a) *In milk*	26,54,417	30,45,382	(—) 12.8
	(b) *Dry and not calved even once*	44,69,913	40,06,266	(+) 11.6
	(ii) *Working*	1,69,868	1,40,195	(+) 21.2
	(iii) *Others*	79,477	50,431	(+) 57.6
	Total	73,73,675	72,42,274	(+) 1.8
	(c) Young stock	83,51,682	72,19,959	(+) 15.7
	Total Cattle	2,47,74,066	2,26,39,701	(+) 9.4
2.	**BUFFALOES**			
	(a) Males over 3 years			
	(i) *Used for breeding only*	27,766	33,093	(—) 16.1
	(ii) *Used for breeding and work both*	19,025	9,06,589	(+) 21.7
	(iii) *Used for work only*	10,84,216		
	(iv) *Others*	9,135	12,405	(—) 26.4
	Total	11,40,142	9,52,087	(+) 19.8
	(b) Females over 3 years			
	(i) *Breeding*			
	(a) *In milk*	10,57,935	10,42,478	(+) 1.5
	(b) *Dry and not calved even once*	12,25,835	11,76,216	(+) 4.2
	(ii) *Working*	14,646	11,013	(+) 33.0
	(iii) *Others*	18,646	11,203	(+) 66.4
	Total	23,17,062	22,40,910	(+) 3.4
	(c) Young stock	21,18,557	18,15,520	(+) 16.7
	Total Buffaloes	55,75,761	50,08,517	(+) 11.3

S. No.	Item	1961 Census (Numbers)	1956 Census (Numbers)	Percentage of increase (+) or decrease (—) of Col. 3 over Col. 4
(1)	(2)	(3)	(4)	(5)
1.	**CATTLE**			
	(a) Males over 3 years			
	(*i*) *Used for breeding only*	29,561	13,360	(+) 121.3
	(*ii*) *Used for breeding and work both*	45,298	—	—
	(*iii*) *Used for work only*	12,951,670	11,780,297	(+) 9.9
	(*iv*) *Others*	113,372	126,201	(—) 10.2
	Total	13,139,901	11,919,858	(+) 10.2
	(b) Females over 3 years			
	(*i*) *Bteeding*			
	(*a*) *In Milk*	2,728,534	2,374,771	(+) 14.9
	(*b*) *Dry and not calved even once*	3,995,352	3,386,505	(+) 18.0
	(*ii*) *Working*	5,247	1,247	(+) 320.8
	(*iii*) *Others*	45,863	21,788	(+) 110.5
	Total	6,744,996	5,784,311	(+) 17.1
	(c) Young stock	6,416,260	5,317,658	(+) 20.7
	Total Cattle	26,331,157	23,021,827	(+) 14.4
2.	**BUFFALOES**			
	(a) Males over 3 years			
	(*i*) *Used for breeding only*	20,459	18,793	(+) 8.3
	(*ii*) *Used for breeding and work both*	27,977	—	—
	(*iii*) *Used for work only*	1,129,191	998,819	(—) 13.1
	(*iv*) *Others*	15,257	9,487	(+) 60.8
	Total	1,192,884	1,027,199	(+) 16.1
	(b) Females over 3 years			
	(*i*) *Breeding*			
	(*a*) *In Milk*	3,122,693	2,774,582	(+) 12.5
	(*b*) *Dry and not calved even once*	2,591,663	2,381,480	(+) 8.8
	(*ii*) *Working*	23,008	18,081	(+) 27.2
	(*iii*) *Others*	17,815	12,495	(+) 42.6
	Total	5,755,179	5,186,638	(+) 11.0
	(c) Young stock	4,020,774	3,584,060	(+) 12.2
	Total Buffaloes	10,968,837	9,797,897	(+) 12.0

(*to be continued*)

Livestock Breeding In Federal Germany

IN every country the economist has to decide whether increased animal production is desirable, and it is known that the price may have a remarkable influence on the production level.

To the farmer the net profit indicates the limits of the desired production of each animal. Yet these economic considerations can only be applied if, by breeding, a potential has been developed which can be utilised to a lesser or higher degree. This is the work of the breeder who, by selection and planned mating, concentrates the desired production qualities in his breeding stock from which animals—especially sires—are continuously made available to regular farmers, in order to propagate the good qualities in the widest possible way.

Herdbook Associations

When, 80 years ago, herdbook associations were formed in Germany, the breeders did not see as far as that. Registration of animals was done solely on genealogical grounds, on conformation and colour. Today, in the Federal Republic of Germany, as far as cattle is concerned, 144,842 herds and 992,832 cows of a total of 1,254 million heads are affiliated to herdbook associations.

Recording of production—about to celebrate 60th anniversary—is carried out on as

many as 35.4% of all cows in 239,592 herds in the German Federal Republic, and became the pace-maker of the idea of economic production. The herdbook associations got scientifically trained directors with a lot of practical experience who regarded the stock registered in their herdbooks as one single big herd and whose advice was, and is, in most cases, willingly accepted by the breeders.

All research work in the field of animal husbandry revolves around the determination of the breeding value of individual animals—mainly sires. This is done either on the basis of the animal's own production or the production of its progeny.

Furthermore, a decision had to be made between nation-wide herdbooks of a breed, or regionally-organised herdbooks. The country shunned the tendency toward bureaucracy, so often seen in nation-wide organisations, and preferred the closer contact between the expert herdbook director and his breeders, as is possible in regional associations with between 20,000 and 60,000 registered cows, depending on the density of herds.

Breeding Value of Sires

All research work in the field of animal husbandry revolves around the determination of the breeding value of individual animals—mainly sires. This is done either on the basis of the animal's own production, or the production of its progeny. There are a great number of methods applied which are constantly being improved. A good example of indications given to each breeder, on these grounds, is the catalogue of the monthly auction sales organised by the herdbook societies. This catalogue gives the complete pedigree, with all production figures.

For all bulls of special interest, additional investigations are carried out today in order to determine their breeding value (expressed by their daughters), even as far as protein and solids-nonfat content of the milk, degree of uniformity in production from each quarter of the udder, and the production of milk per minute are concerned.

A New Stimulus

A new stimulus to progeny testing was the development of artificial insemination. The new technical venture of deep-freeze of sperm entails the possibility of storage of the semen of young bulls until their test period is over or, in the case of specially proven bulls, for later matings planned in the interest of the breed.

German working methods have been refined. By sound co-ordination of research work, organisation, and the measures of the practical breeder, an increase of production has been achieved during the past 50 years, particularly after the war, which would have been regarded as Utopian even 20 years ago. It is important that this achievement was not confined to the real breeding herds, but is to be found all over the country.

('*German News Weekly*')

(*Contd. from page 10*)

"... a carte blanche to do anythig he (Shri U. N. Dhebar) likes, so far as animal husbandry is concerned ...."

should become the President of the Central Council of Gosamvardhana, and he kindly accepted the present Presidentship of it. I hope that inspite of his multifarious activities, he will continue to be the President of that body, and on behalf of Government, I promise him that I would give him a *carte blanche* to do anything he likes so far as animal husbandry is concerned, because I know his dedication and devotion to that subject. It is true that sometimes, when a subject is brought up, money may not be enough. We have set apart Rs. 90 crores, Rs. 56 crores for animal husbandry and Rs. 34 crores for milk etc. But even supposing something more is needed, money could be found, because no good scheme in this country will ever remain starved for want of money. And with a leadership like that of Shri U. N. Dhebar, surely he cannot only sit upon me but he can get me and the rest of my colleagues to do anything that he wants for the promotion of animal husbandry in this country."

GOSAMVARDHANA

Is an ideal medium for Advertising

Advertisement Rates:—

Full Page	Rs 100
Half Page	Rs 50
Quarter Page	Rs 25

- 15% Agency Commission
- 10% rebate for six consecutive insertions

Please write to :

The Official Secretary, Central Council Of Gosamvardhana

Pataudi House, New Delhi.

Regd. No. D 817

55'4

" For well over 20 years, Equipment supplied by " Cirugia " have been turning the wheels of Animal Husbandry practices. These classic ' De Lux ' products have won the confidence of technical men every where for enduring quality and dependability. That's why you'll find these equipment in hospitals whereever you go in India. "

CIRUGIA DE LUX PRIVATE LTD.

CALCUTTA-13 BOMBAY-1 MADRAS-8

Printed and published by Y. M. Parnerkar, Secretary (Non-official), Central Council of Gosamvardhana, New Delhi at The Zodiac Press, Tilak Marg, Delhi-6